



# Usage of Runoff and Erosion Reduction Programs in Agriculture as an Option to Address Pesticide Risks to Endangered Species<sup>1</sup>

*Report of Results from a Survey Conducted by the USDA Office of Pest Management Policy*

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This data collection, conducted by USDA’s Office of Pest Management Policy (OPMP), was authorized by the Agriculture Improvement Act of 2018 (Title X, Section 10109) and is approved under OMB Control No. 0503-0206.<sup>3</sup> **This survey program is designed to quickly gather information from *trusted-expert agricultural advisors, consultants, and extension agents*.** The resulting information can be used to help broadly characterize agricultural pest management practices to help inform pesticide use regulations and pesticide label language to achieve environmental protection goals with the least cost to growers. **This survey was conducted to characterize participation in “site-specific agricultural runoff/erosion reduction programs,” to supplement existing bodies of information on conservation program participation and inform interagency and stakeholder discussions on the viability of participation in such programs as an option to comply with EPA’s 2023 proposed requirements designed to address pesticide risks to endangered species.** The results of this survey indicate that while agricultural advisors/consultants/extension agents are aware of site-specific runoff/erosion programs and some growers/operations already participate in such programs, there may be barriers to entry in these programs for many growers/operations, especially specialty crop growers/operations and growers/operations operating on rented/leased land. Furthermore, some operations may be using informal practices that do not result in documentation of participation, which may not clearly qualify for EPA’s proposed requirements. Additional education/outreach, expansion of existing programs, and/or development of new programs would be needed to increase participation in site-specific runoff/erosion programs, which could make program participation a more viable option for growers/operations to satisfy EPA’s proposed requirements.

## Summary Highlights

- ❖ A total of 287 respondents representing over 4,700 outdoor agricultural operations completed the survey.
- ❖ **Respondents estimated 34 percent of operations they represent participated in a site-specific runoff/erosion reduction program of any kind** on at least one field.
  - Respondents that represent specialty crop operations reported participation in Federal and State programs, which more clearly qualify as an option to satisfy EPA’s proposed requirements, about half as often as respondents that represent nonspecialty crop operations.
  - Specialty crop growers/operations may therefore be less able to use current participation in programs to comply with EPA’s proposed requirements and may therefore need to either seek programs in which to participate OR comply using other options presented in EPA’s proposal.
- ❖ Respondents reported the most common reasons operations did not participate in runoff/erosion reduction programs were: the operation did not experience problematic levels of runoff/erosion (34 percent of respondents), the belief that programs were not available in their area (39 percent), perception that program participation was too expensive (27 percent), and/or operation was on a waiting list (25 percent).

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<sup>2</sup> USDA Office of Pest Management Policy. See <https://www.usda.gov/oce/pest/about>

<sup>3</sup> OMB Control Number: 0503-0026; Generic Clearance of Multiple Crop and Pesticide Use

## Introduction

Beginning with the release of the Endangered Species Act (ESA) Workplan that presented Interim Ecological Mitigations in 2022 and continuing with the Vulnerable Species Pilot Project and Herbicide Strategy in 2023, Environmental Protection Agency (EPA) has proposed a new framework of mitigations to reduce pesticide exposure and risk to nontarget plants and wildlife, including federally listed species and their critical habitats<sup>4</sup>. This framework includes a “menu” of runoff/erosion mitigation measures from which operations would be required to implement a specified number of practices before using certain pesticides. To provide some flexibility, **EPA has proposed exemptions from the requirement to implement specific mitigations if certain criteria are met, including participation in a site-specific runoff/erosion reduction program.** Currently available data sources, however, do not provide complete information on the extent to which these programs (especially nongovernment programs) are currently being used by U.S. operations.

USDA conducted this survey to supplement existing information on program participation, and to develop broad information on the extent of current participation in different types of runoff/erosion programs across different crops/use sites. EPA’s current proposals are not clear on what factors would be necessary for program participation to qualify as an option to satisfy their proposed requirements. EPA may ultimately determine that operations need to obtain/maintain documentation of their program participation for compliance purposes. Thus, independently following a program, practice, or guidelines that does not result in documentation of participation, rather than participating in a formalized program, might not qualify or might not as clearly qualify. To collect information on the extent to which documentation exists for practices currently employed by growers/operations, this survey distinguished between programs where documentation of participation is available and other independent conservation practices where formal documentation is not readily available. The survey also asked about motivations and deterrents to program enrollment to enhance our understanding of how EPA’s proposed mitigations might impact growers/operations.

The survey was distributed through Qualtrics™ for 2 weeks in July 2023 to independent crop consultants affiliated with the National Alliance of Independent Crop Consultants, certified crop advisors affiliated with the American Society of Agronomy, and county extension agents affiliated with the National Association of County Agricultural Agents. Agricultural producers routinely rely upon experts from these groups for research and guidance on effective/appropriate agronomic practices, including use of pesticides. As such, surveying this select group of individuals can provide information on the practices employed by a broad range of agricultural producers and enabled USDA to quickly gain insights to inform the regulatory process. **Survey respondents were asked to report site specific runoff/erosion program participation over the past 5 years on operations they represent (either in an advisory/consultant capacity or as a grower themselves).** The majority of survey questions were multiple-choice and focused on major groups of crops on which pesticides can be used (a.k.a. “use sites”), and major categories of runoff/erosion reduction programs. Opportunities were provided within the survey for respondents to elaborate on their multiple-choice answers in optional open-ended text response fields. The survey was designed using question “routing” and “piping” techniques to ensure that respondents only received questions relevant to their reported practices. That is, respondents only received questions about practices they reported using, on use sites with which they reported being involved. These techniques, in addition to some survey attrition, resulted in different numbers of responses for different questions. The number of responses for each question (n) is listed in figure and table captions. While not designed to provide estimates of program participation by operations directly, the results of this survey provide substantive qualitative information from trusted agricultural experts who represent a wide population of agricultural operations. The results from this survey are intended to inform interagency and stakeholder discussions on the viability of runoff/erosion reduction program participation as an option to comply with EPA’s proposed ESA requirements and to inform EPA’s development of appropriate qualification criteria.

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<sup>4</sup> <https://www.epa.gov/endangered-species/implementing-epas-workplan-protect-endangered-and-threatened-species-pesticides>

## Background on Respondents

Survey respondents were asked to report participation in site-specific runoff/erosion reduction programs used in the past 5 years on operations they represent (either in an advisory/consultant capacity or as a grower). **Of those who received a link to the survey, 287 provided a complete or largely complete response (referred to hereafter as “respondents” and/or “all respondents”).** Respondents self-identified as certified crop advisors (86 percent of respondents), faculty/staff of academic institutions (e.g., professors, researchers, extension agents) (15 percent), and independent crop consultants (3 percent). Many respondents (35 percent) reported that they were agricultural producers in addition to their reported roles as advisors, educators, and/or consultants. The survey received responses representing all regions in the conterminous United States, with the majority reporting from the Midwest production region (Figure 1). Most respondents (85 percent) had 10 or more years of experience with one or more of the use sites/crops for which they provided responses. As this survey targeted

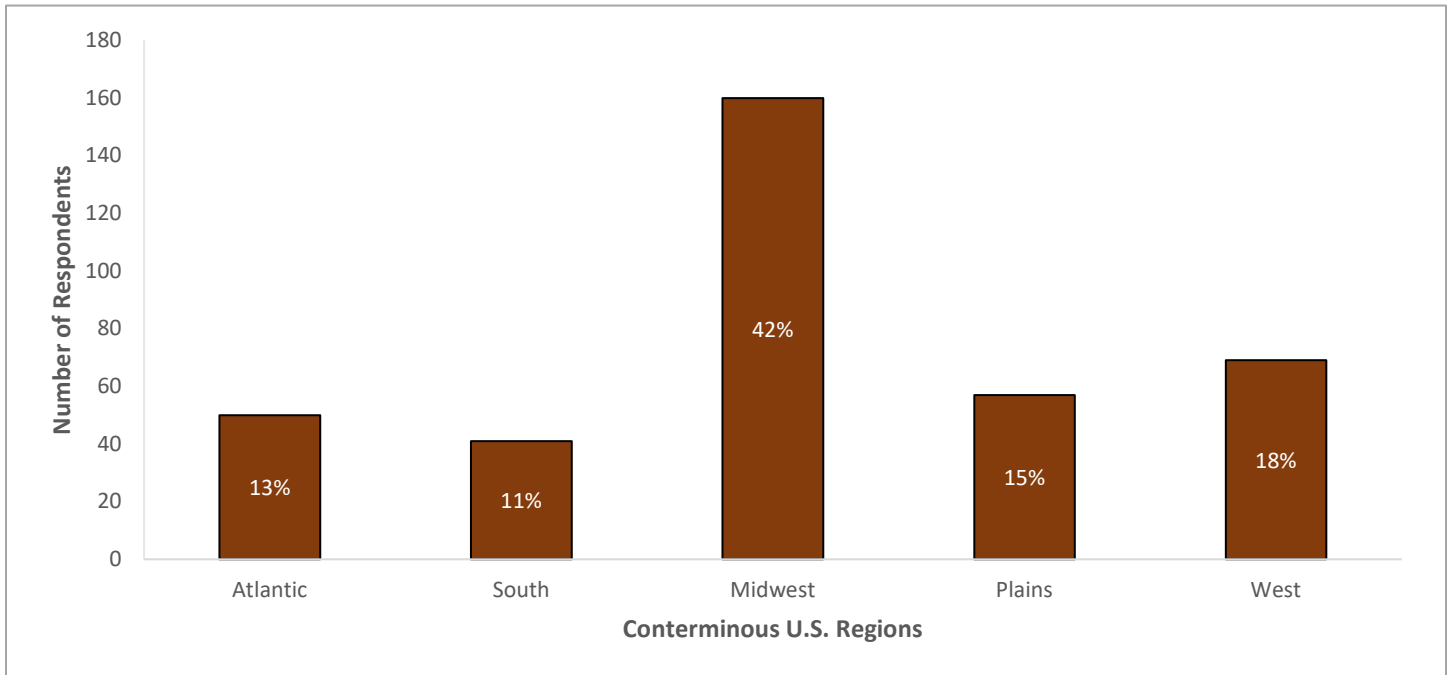
### Respondent details:

- Total respondents: 287 (representing over 4,700 operations).
- Represented Independent crop consultants, certified crop advisors, and county extension agents.
- 85 percent of respondents had 10+ years of experience in agricultural production.
- 75 percent of respondents represent >10 grower operations.

crop advisors, consultants, and extension agents, each individual respondent could potentially provide information for program participation on multiple operations. Over half of the respondents (63 percent) reported that they represent more than 20 agricultural operations (i.e., they provided professional guidance to >20 individual agricultural operations). As such, this survey’s responses represent site-specific erosion/runoff reduction program participation for over 4,700 agricultural operations. While the majority of respondents represented more than one agricultural operation, in the summary statistics presented below, each respondent’s answers were weighted equally (i.e., results were not scaled based on number of operations each respondent reported representing). Information on number of operations represented by respondents is included only to contextualize the representativeness of the survey’s results. Therefore, **results are the number or percent of respondents associated with/representing operations in a specified grouping, not the actual number or percent of growers/operations in a specified grouping, unless otherwise specified.** The majority of results are summarized as a percent of survey respondents representing one or more of the operations within a specified grouping (e.g., all types of operations, runoff/erosion reduction program participants, specialty crop operations, etc.). For many questions, respondents could provide more than one answer, and thus percentages are not additive.

The survey’s questions focused on runoff/erosion reduction program participation in major groups of outdoor crops/use sites: field crops, pasture/rangeland, fallow agricultural land, fruit and nut trees, vegetables, horticulture (nursery and floriculture), and other crops. The “other crops” category includes respondents who reported information on use sites not included in the major listed categories, such as cover crops, forestry, wildlife plots, seed production plots, and others. Because the number of responses for “other crops” was small (19 respondents), and because the group was comprised of varied use sites, statistics for the “other crops” group are not provided separately. Responses for “other crops,” however, are included in the aggregated “all respondents” summaries for responses across crops.

Table 1 shows the number of respondents who were involved with each use site as well as demographic information about their experience and reach.



**Figure 1.** Number of survey respondents displayed by NASS Production Region<sup>5</sup>. Note that respondents could select multiple regions (n= 287). **Survey questions:** *In which NASS Production Region(s) were you involved with the production of the crops indicated above in the past 5 years? Select all that apply.*

**Table 1.** Respondent demographics by use site (n= 287).

Use Site	Number of Respondents	>10 Years Experience	Involved with >10 Operations
Field Crops	261	85%	72%
Pasture/Rangeland	164	72%	53%
Fallow Agricultural Land	76	68%	50%
Fruit & Tree Nuts (including Berries)	62	70%	58%
Vegetables	92	65%	41%
Horticulture (Nursery and Floriculture)	31	61%	35%

**Survey questions:** *In the past 5 years, which of the following outdoor agricultural production systems were you involved in (either as a producer or in an advisory capacity)? Select all that apply<sup>6</sup>.; For approximately how many years have you been involved in production of the crops indicated above?; Approximately how many operations of the crop systems identified do your answers represent?*

<sup>5</sup> This grouping uses the Agricultural Resource Management Survey (ARMS) III Production Regions. **Atlantic region:** Connecticut, Delaware, District of Columbia, Kentucky, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, North Carolina, Pennsylvania, Rhode Island, Tennessee, Vermont, Virginia, and West Virginia. **South region:** Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, and South Carolina. **Midwest region:** Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio, and Wisconsin. **Plains region:** Kansas, Nebraska, North Dakota, Oklahoma, South Dakota, and Texas. **West region:** Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming ARMS III Production Regions map available at <https://www.nass.usda.gov>.

<sup>6</sup> Field Crops; Pasture/Rangeland; Fallow Agricultural Land; Fruit & Tree Nuts (including Berries); Vegetables; Horticulture ; (Nursery and Floriculture); Other.

## Types of Site-Specific Runoff/erosion Reduction Programs

In order to determine the extent to which different runoff/erosion reduction program types are currently being used, USDA asked advisors/consultants/extension agents about participation in major categories of programs: government (Federal, State, and local/municipal) and nongovernment (extension, commercial, and nonprofit) programs where documentation of participation is available; as well as following a program, practice, or guidelines where documentation of participation is not available. Programs where documentation of participation is not available may not qualify, or may not as clearly qualify, as an option to satisfy EPA's proposed requirements. This question is broken down by crop/use site and runoff/erosion reduction program type. The information presented in this section provides a breakdown of the relative prevalence of different types of site-specific runoff/erosion programs in which respondents reported that one or more of the operations they represent participated. Operations that participate in a program *might* be able to utilize their participation as an option to comply with EPA's proposed requirements designed to address pesticide risks to endangered species. However, *because this question measured respondent participation on one or more of the operations respondents represent, and many respondents represented more than one operation, the values presented in this section are an overestimate of the percent of operations that participate in programs.* Further information on operation level participation is discussed later in this document. **Across all surveyed crops/use sites and all program types**, 79 percent of all respondents reported that one or more of the operations they represent participated in at least one runoff/erosion reduction program of any type.

***Across all surveyed crops/use sites, government*** (Federal, State, and local/municipal) site-specific runoff/erosion reduction programs were the most commonly reported type of program, with 64 percent of all respondents reporting that one or more of the operations they represent participated in government site-specific runoff/erosion reduction programs. Within the government program category, 52 percent of all respondents reported that one or more of the operations they represent participated in *Federal* site-specific runoff/erosion reduction programs, 44 percent of all respondents reported that one or more of the operations they represent participated in *State* programs, and only 16 percent of all respondents reported that one or more of the operations they represent participated in *local/municipal* site-specific runoff/erosion reduction programs.

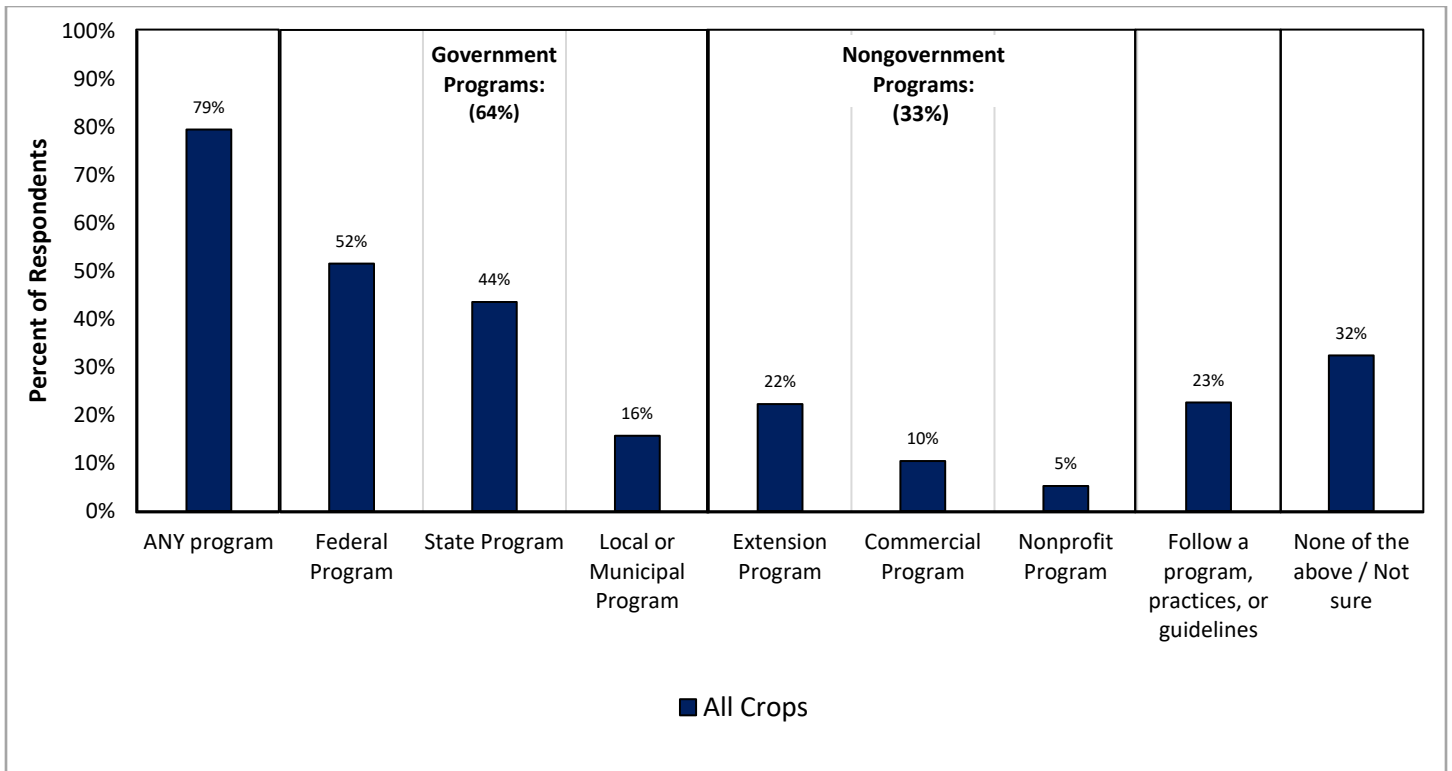
Compared to reported participation in government programs, only 33 percent of all respondents across all surveyed crops/use sites reported that one or more of the operations they represent participated in **nongovernment** (extension, commercial, and nonprofit) site-specific runoff/erosion reduction programs. Within the nongovernment program category, 22 percent of all respondents reported that one or more of the operations they represent participated in *extension* programs. Participation in other nongovernment programs was reported much less often, with participation in *commercial* site-specific runoff/erosion reduction programs reported by only 10 percent of all respondents, and participation in *nonprofit* site-specific runoff/erosion reduction programs reported by less than 5 percent of all respondents.

In comparison, across all surveyed use sites, 23 percent of all respondents reported that one or more of the operations they represent followed a site-specific runoff/erosion reduction **program, practice, or guideline that did not result in a record of participation.**

Finally, about a third of all respondents (32 percent) reported at least one operation they represent **did not participate in any site-specific runoff/erosion reduction programs at all.**

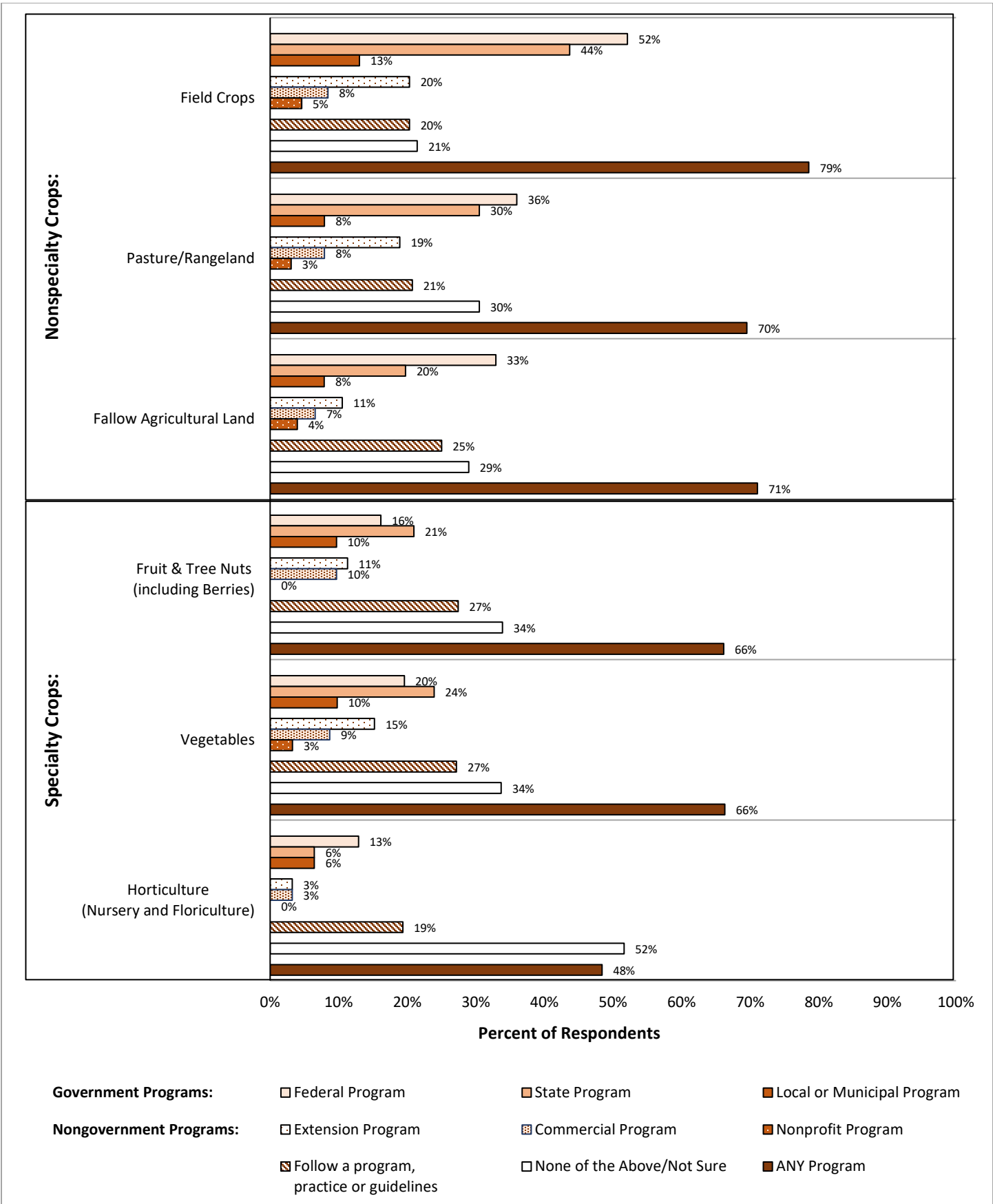
Responses for site-specific runoff/erosion reduction program participation across grouped use sites (Figure 2) and by use site (Figure 3) are provided below. Note respondents could select more than one option, thus percents are nonadditive.

Respondents could also provide the names of programs in which operations they represent participated in optional open-ended text fields. The names of programs reported are provided in Appendix A.



**Figure 2.** Percent of respondents who reported that one or more of the operations they represent participated in site-specific erosion and/or runoff reduction programs in the past 5 years, *by type of program*. Note that respondents could select multiple crops/use sites and multiple program types, therefore percentages are nonadditive (n = 287). **Survey question:** *Were any of the following site-specific conservation/stewardship program(s) used specifically to reduce runoff or erosion on any/some of operations with which you were involved? Please select all programs used for each crop/use site<sup>7</sup> on any operation with which you were involved.*

<sup>7</sup> **Federal Program** (record of participation exists); **State Program** (record of participation exists); **Local or Municipal Program** (record of participation exists); **Extension Program** (record of participation exists); **Commercial Program** (record of participation exists); **Nonprofit Program** (record of participation exists); **Other Program** (record of participation exists); **Follow a program, practices, or guidelines** (does not result in documentation of participation); **None of the above / Not sure**.



**Figure 3.** Percent of respondents who reported that one or more of the operations they represent participated in site-specific erosion and/or runoff reduction programs in the past 5 years, *by crop/use site and type of program*. Note that respondents could select multiple use sites and multiple program types, therefore percentages are nonadditive (n = 287). **Survey question:** *Were any of the following site-specific conservation/stewardship program(s) used specifically to reduce runoff or erosion on any/some of operations with which you were involved? Please select all programs used for each crop/use site on any operation with which you were involved.*



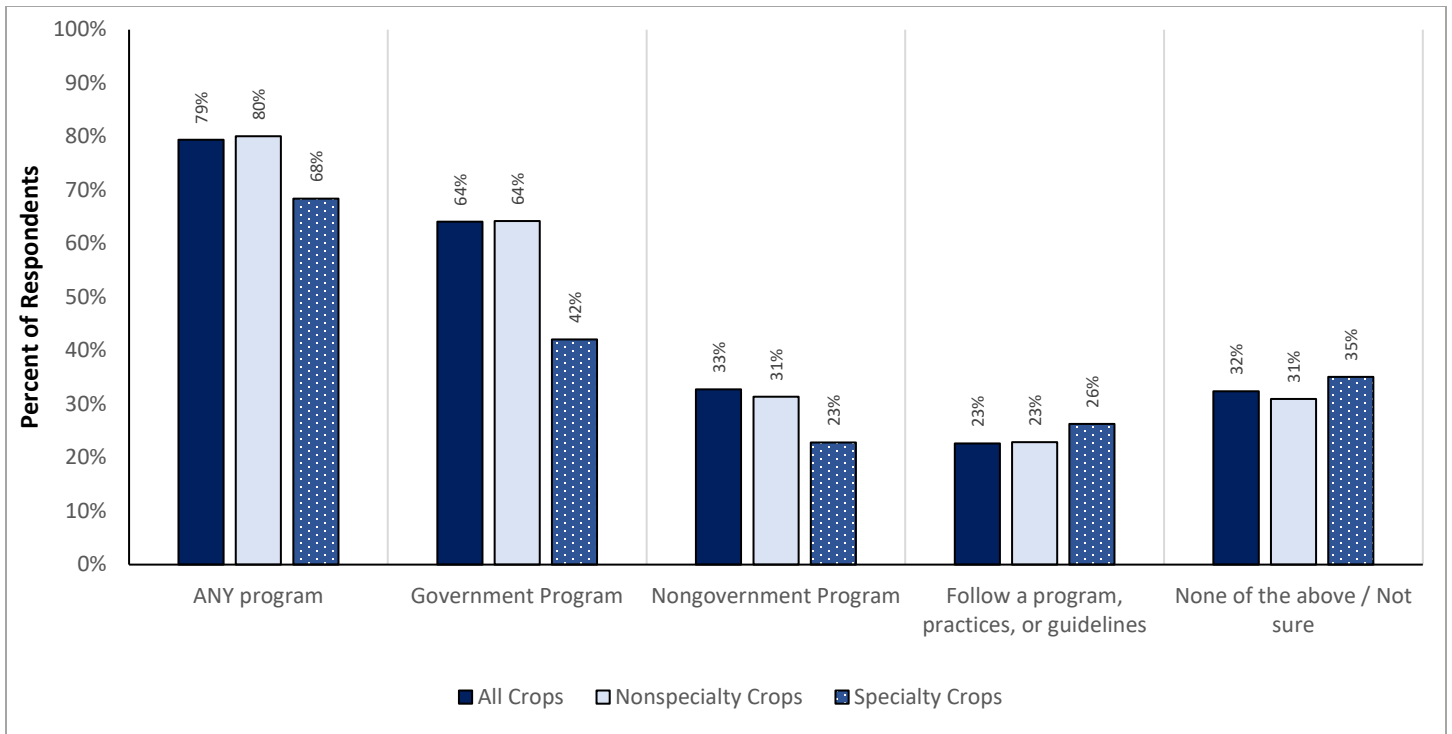
Examination of survey responses *by grouped crop/use site type* shows that, **across program types**, reported participation in runoff/erosion reduction programs is fairly consistent among broadly grouped use sites. Sixty-eight percent of respondents representing **specialty crop** operations (fruit & tree nuts, vegetables, and horticulture (nursery and floriculture)) (hereafter “specialty crop respondents”) reported that one or more of the operations they represent participated in any site-specific erosion/runoff reduction program, and 80 percent of respondents representing **nonspecialty crop** operations (field crops, pasture/rangeland, and fallow agricultural land) (hereafter “nonspecialty crop respondents”) reported that one or more of the operations they represent participated in any site-specific erosion/runoff reduction program. However, a comparison of participation in the different types of programs reported by respondents representing specialty and nonspecialty crops shows a substantial difference in types of programs used between specialty and nonspecialty crop operations (Figure 4).

While **government programs** (Federal, State, and local/municipal) were the most common type of program in which respondents representing both nonspecialty and specialty crops reported participation, nonspecialty crop respondents reported higher levels of participation in government programs than specialty crop respondents. Sixty-four percent of respondents representing nonspecialty crops reported that one or more of the operations they represent participated in government programs, whereas only 42 percent of respondents representing specialty crops reported that one or more of the operations they represent participated in government programs.

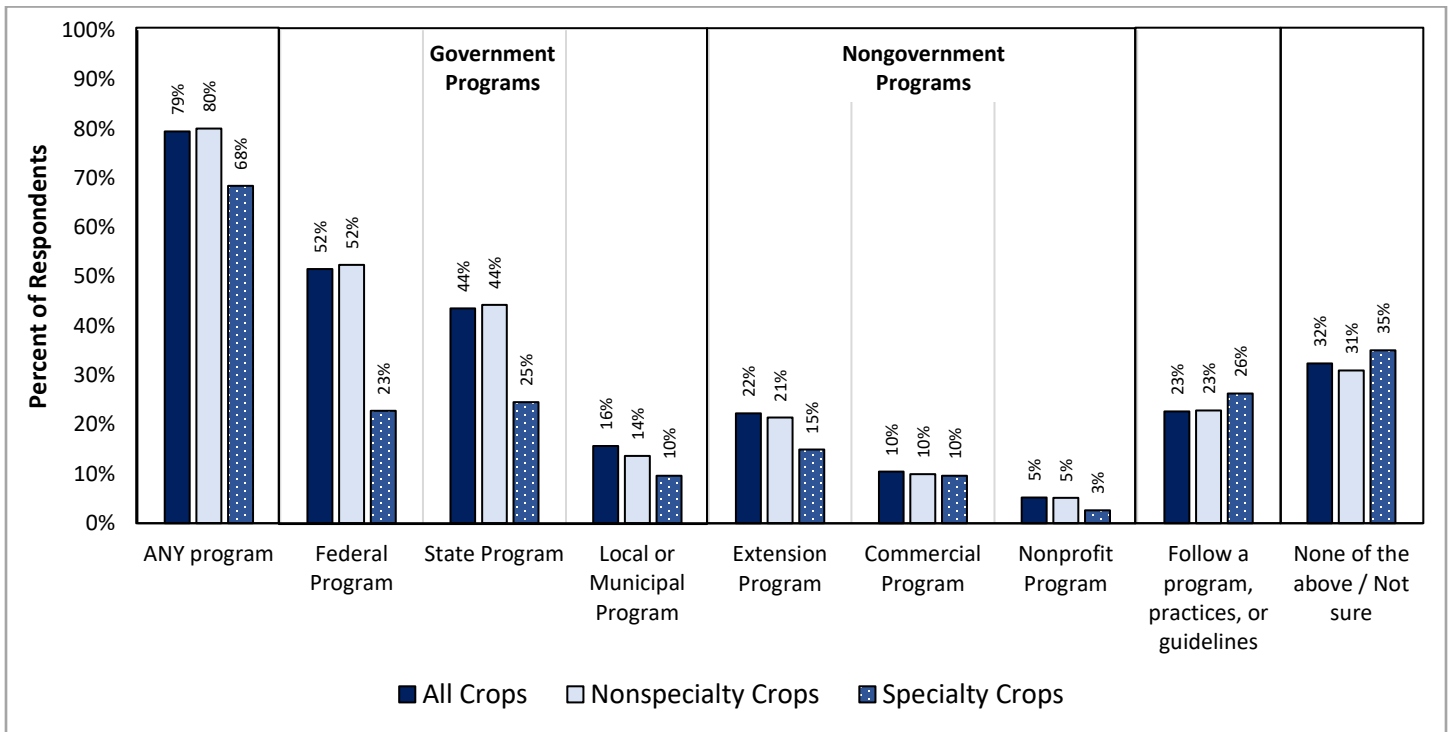
When comparing reported participation in different types of government programs, the difference between specialty crop and nonspecialty crop program participation is even more pronounced. Nonspecialty crop respondents reported that one or more of the operations they represent participated in Federal and State programs about twice as often as specialty crop respondents (Figure 5). Fifty-two percent of Nonspecialty crop respondents reported that one or more operations they represent participated in *Federal* programs, whereas only 23 percent of specialty crop respondents reported operations they represent participated in Federal programs. Similarly, 44 percent of nonspecialty crop respondents reported that operations they represent participated in *State* programs, whereas only 25 percent of specialty crop respondents reported operations they represent participated in State programs. Indeed, **specialty crop respondents** reported similar levels of participation in following a program, practice, or guidelines that did not result in documentation of participation (26 percent of specialty crop respondents), as participation in a Federal program (23 percent of specialty crop respondents) or State program (25 percent of specialty crop respondents), and reported even higher levels of not participating in any program at all (35 percent of specialty crop respondents) (Figure 5). **Nonspecialty crop respondents**, on the other hand, reported that one or more operations they represent participated in Federal programs (52 percent of nonspecialty crop respondents) or State programs (44 percent of nonspecialty crop respondents) much more often than they reported following a program practice or guidelines (23 percent of nonspecialty crop respondents) or not participating in any program at all (31 percent of nonspecialty crop respondents) (Figure 5). While the exact proportion of operations participating in each type of runoff/erosion program cannot be determined from this dataset, because this question was broken down by respondent rather than operation, **these responses indicate that, specialty crop operations may be less likely to be able to comply with EPA’s proposed requirements by participating in site specific runoff/erosion reduction programs than nonspecialty crop operations, because the programs in which they most often participated less clearly qualify as an option to satisfy EPA’s proposed requirements.**

Responses for site-specific runoff/erosion reduction program participation **by grouped specialty and nonspecialty crop respondents** are provided by grouped program type (Figure 4) and individual program type (Figure 5) below. Note respondents could select more than one crop and more than one program, thus percents are nonadditive.





**Figure 4.** Percent of respondents who reported that one or more of the operations they represent participated in site-specific runoff/erosion reduction programs in the past 5 years, *by grouped program and grouped crop/use site*. Note that respondents could select multiple use sites and multiple program types, thus percentages are nonadditive (n = 287). **Survey question:** *Were any of the following site-specific conservation/stewardship program(s) used specifically to reduce runoff or erosion on any/some of operations with which you were involved? Please select all programs used for each crop/use site on any operation with which you were involved.*

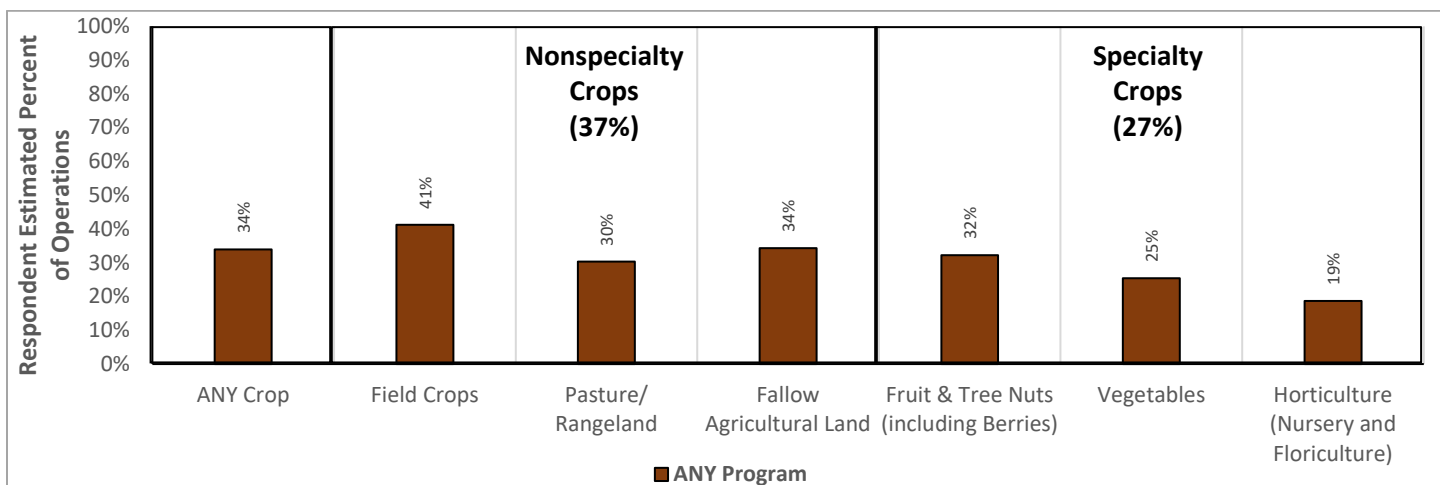


**Figure 5.** Percent of respondents who reported that one or more of the operations they represent participated in site-specific runoff/erosion reduction programs in the past 5 years, *by grouped crop/use site*. Note that respondents could select multiple use sites and multiple program types, thus percentages are nonadditive (n = 287). **Survey question:** *Were any of the following site-specific conservation/stewardship program(s) used specifically to reduce runoff or erosion on any/some of operations with which you were involved? Please select all programs used for each crop/use site on any operation with which you were involved.*

## Percent of Operations Utilizing Site-Specific Runoff/Erosion Reduction Programs

As noted above, respondents often represented more than one operation. In order to better estimate program participation on an operational level, USDA asked respondents who represented operations that participated in any runoff/erosion reduction programs (a.k.a. respondents who represent runoff/erosion reduction program participants) to estimate the percent of operations they represent that participated in a site-specific runoff/erosion program of any kind for each of the crop/use site types they reported representing. USDA averaged these estimates over the total number of responses for each crop/use site, including respondents who reported no participation, to estimate the total percent of operations for each crop type that participated in one or more programs of any type across all respondents. This question is broken down by crop/use site type.

**Across all crops/use sites, respondents estimated that 34 percent of operations they represent participated in at least one runoff/erosion reduction program of any kind, on any field, in the past 5 years.** By crop/use site, the respondent-estimated percent of operations that participated in a program of any type, on any field, ranges from 19 to 41 percent (Figure 6). As previously noted, all programs might not qualify, or might not as clearly qualify, as an option to satisfy EPA’s proposed requirements. If that is the case, the estimated percent of operations that participate in a qualifying program would be lower than the estimates of operations that participate in any type of site-specific runoff/erosion reduction program provided here. Because this question was broken down by crop type rather than program type, differences in the estimated percent of operations that participate in each type of runoff/erosion program cannot be determined from this dataset. Furthermore, because the types of runoff/erosion reduction programs that respondents previously indicated the specialty crop operations they represent most commonly participated in less clearly qualify as an option to satisfy EPA’s proposed requirements (see discussion of Figure 4), the estimated percent of qualifying program participation may be particularly inflated for specialty crop operations. Additionally, it is unclear from EPA’s current proposal whether program participation will be required at the field or operation level. Operations likely do not participate in programs on all fields they farm. Therefore, if program participation is required at the field level, the estimated percent of qualifying program participation would likely be even lower than the estimated operational level participation provided here. **Because all surveyed program types may not satisfy EPA’s proposed requirement, and operations likely do not participate in programs on all fields they farm, the estimates presented here represent an upper bound of the number of operations and fields that may currently be able to use program participation as an option to satisfy EPA’s proposed requirements to protect endangered species.** Responses *by use site* are reported below (Figure 6).



**Figure 6.** Average respondent estimated percent of operations that they represent that participated in any site-specific runoff/erosion reduction program, on any field, at least once over the past 5 years, as estimated by respondents *for each crop/use site* (n= 287). **Survey question:** *On what percentage of operations with which you were involved were site-specific runoff/erosion reduction programs used to enhance runoff/erosion reduction?*

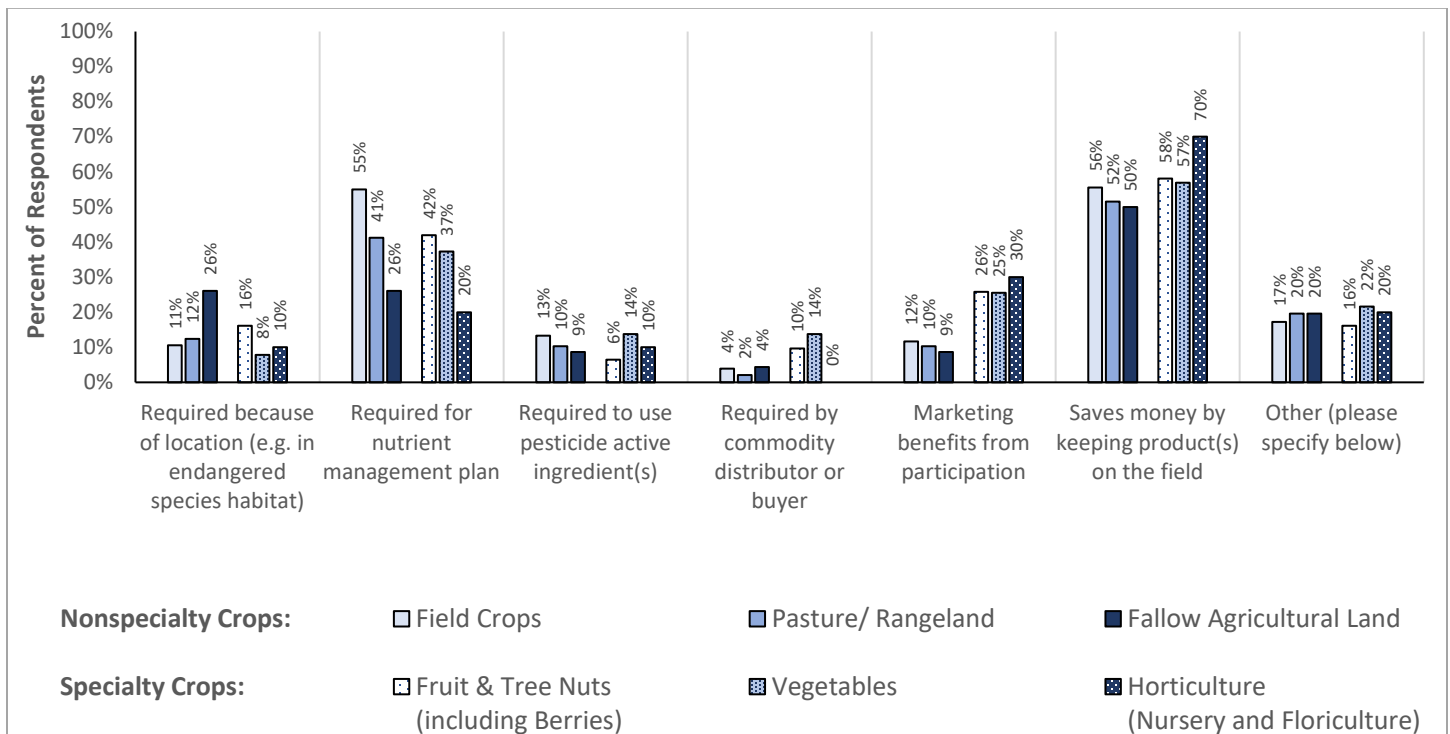
Respondent's estimates of the percent of operation participating in a runoff/erosion reduction program of any type show similar patterns across use sites to the percent of respondents who reported that one or more of the operations they represent participated in any runoff/erosion reduction programs in the previous section (see figure 3). However, despite similar patterns, the percentages are smaller, likely indicating that the advisor/consultant respondents are aware of programs but not all operations they represent are participating. In general, the average percent of operations that respondents estimated participated in any program for each surveyed crop/use site category is about half of the percent of respondents who reported that at least one operation they represent participated in a site-specific runoff/erosion reduction program of any type in the past 5 years. For instance, about 80 percent of field crop survey respondents reported that at least one operation they represent participated in any type of runoff/erosion reduction program in the past 5 years (Figure 3), but those same survey respondents estimated that only about 40 percent of field crop operations they represent participated in any type of runoff/erosion reduction programs at least once in the past 5 years (Figure 6). This seems to indicate that the decision to participate or not participate in a program by an operator, or a decision recommend or not recommend a program by an advisor/consultant survey respondent, may be based on a number of factors such as cost and perceived need. Reasons why operations did and did not participate in runoff/erosion reduction programs, as reported by survey respondents, are discussed further in the following sections.

## Motivations for Participation in Site-Specific Runoff/Erosion Reduction Programs in Addition to Runoff and Erosion Reduction

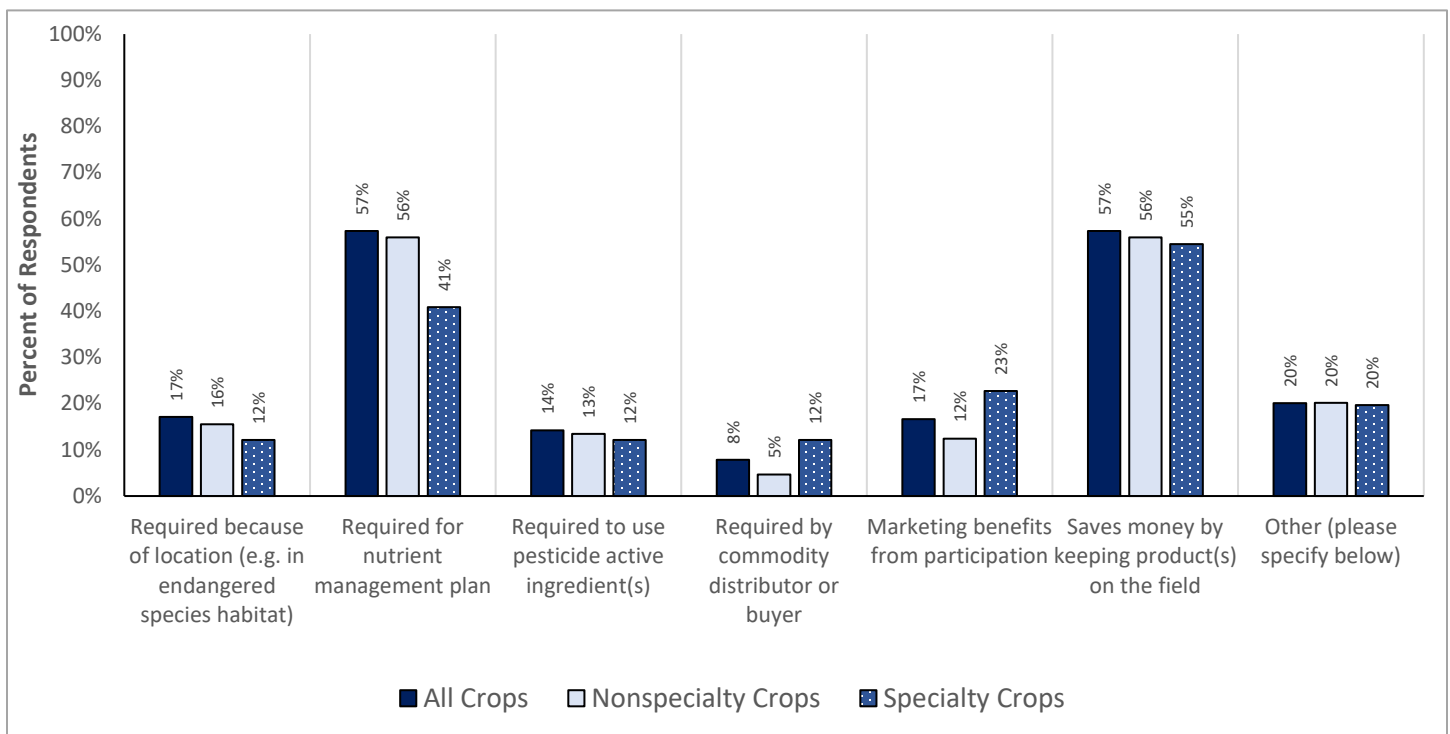
In order to better understand the existing motivations for program participation, and how those motivations may differ by crop/use site type, USDA asked respondents who reported representing operations that participated in runoff/erosion reduction programs (a.k.a. **respondents who represent runoff/erosion reduction program participants**) if there were any additional benefits of, or reasons for, participating in site-specific runoff/erosion reduction programs for the use sites they represent. Where programs have capacity for additional participants, these motivations and additional benefits could potentially be leveraged to encourage more operations to participate in site-specific runoff/erosion programs and thus be able to use program participation to comply with EPA's proposed mitigations. This question is broken down by crop/use site type.

**Across all surveyed use sites**, 99 percent of respondents who represent runoff/erosion reduction program participants reported at least one additional benefit or reason for participating in programs. The most commonly reported additional benefits were: saves money by keeping product(s) on field (57 percent of respondents who represent program participants) and required for nutrient management plan (57 percent of respondents who represent program participants). Reported answers were similar between nonspecialty crop and specialty crop respondents. However, **nonspecialty crop respondents** were 15 percentage points more likely than specialty crop respondents to report that program participation was a requirement of a nutrient management plan for operations they represent (56 percent of nonspecialty respondents compared to 41 percent of specialty crop respondents). **Specialty crop respondents**, on the other hand, were about 10 percentage points more likely than nonspecialty crop respondents to report that one or more of the operations they represent gained marketing benefits from program participation (23 percent of specialty crop respondents compared to 13 percent of nonspecialty crop respondents) and that participation in a program was a requirement of one or more of the operations they represent's commodity distributor or buyer (12 percent of specialty crop respondents compared to 5 percent of nonspecialty crop respondents). These dissimilarities may point to different motivations for specialty crop and nonspecialty crop operations to participate in runoff/erosion reduction programs, which could potentially be leveraged to increase program participation. Because this question was broken down by crop type rather than program type, any differences in perceived additional benefits between program types cannot be determined from this dataset.

Responses **by crop/use site** are displayed in Figure 8 and responses broken down by **specialty and nonspecialty crop** are displayed in Figure 9.



**Figure 8.** Additional benefits associated with participation in site-specific erosion and/or runoff reduction programs in the past 5 years, **by crop/use site** (n = 287). **Survey question:** Besides runoff/erosion reduction, were there any additional benefits of, or reasons for, participation in site-specific runoff/erosion reduction programs?

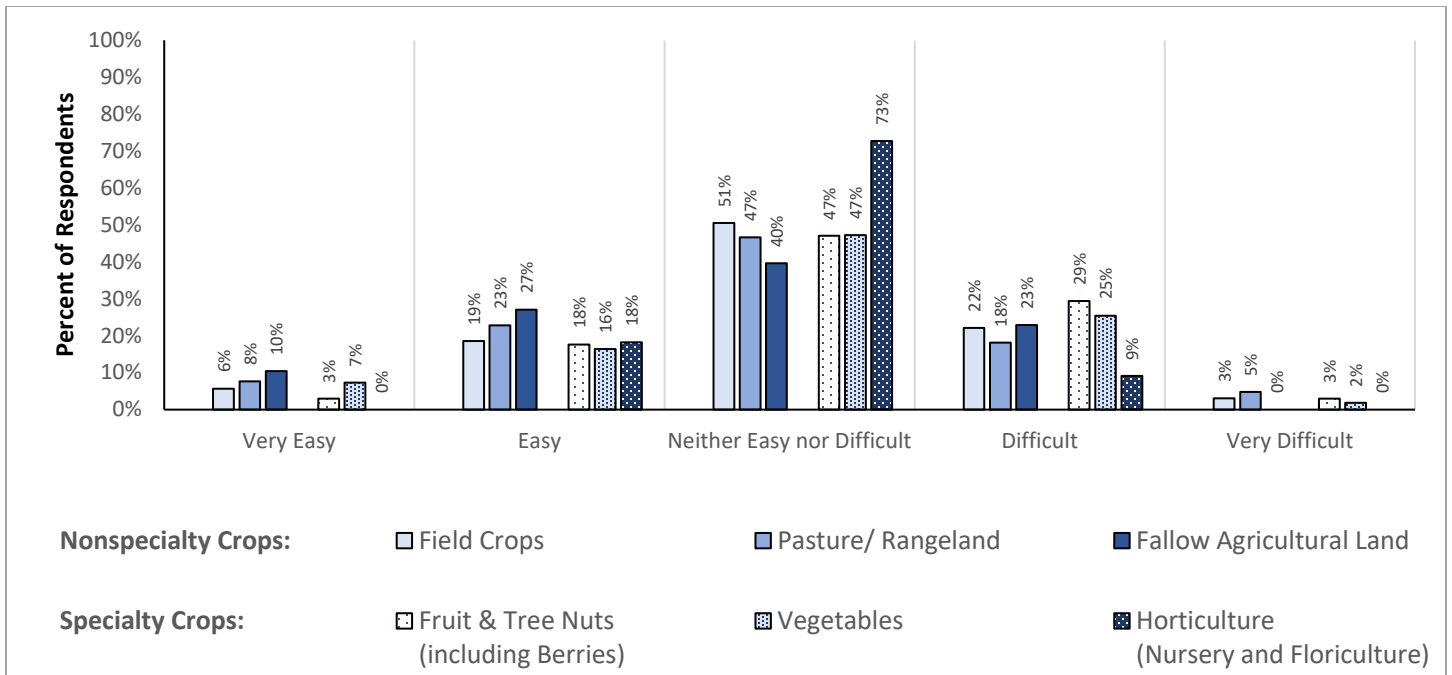


**Figure 9.** Additional benefits associated with participation in site-specific erosion and/or runoff reduction programs in the past 5 years, **by grouped specialty and nonspecialty crop use sites** (n = 287). **Survey question:** Besides runoff/erosion reduction, were there any additional benefits of, or reasons for, participation in, site-specific runoff/erosion reduction programs?

**Respondents who represent runoff/erosion reduction program participants** were also able to provide **optional open ended text feedback** to elaborate on additional benefits from participating in runoff/erosion reduction programs. Approximately 30 percent of respondents who answered the associated multiple-choice question provided additional feedback. We recognize that these comments may not represent all grower/operations, however, several themes that emerged from these comments are summarized here. Direct quotes from respondents are in grey italics. Several respondents indicated that they receive *“incentive payments,”* including *“tax credits”* for participating in programs. Additionally, many respondents mentioned improvements in productivity and yield from *“building soil health”* including that *“reducing runoff helps productivity”* and that implementation of practices *“increased crop yields [by increasing] retention of organic matter.”* Several also mentioned *“enhance[d] wildlife habitat, [and] beneficial insect species habitat”* created by some runoff/erosion reduction practices. Another theme that emerged was a sense of stewardship of the land. As one respondent put it, *“most farmers are concerned about the environment and enacting conservation because of a sense of stewardship.”* Another respondent commented, operations adopted erosion/runoff reduction programs because *“the practices are good for the future of the farm, good for the community, [and] good for the environment which farmers care about deeply!”* Emphasizing these and other benefits of program participation in education and outreach efforts may help increase program participation and thus allow more operations to use participation in programs to comply with EPA's proposed requirements to protect endangered species.

## Ease of Participation in Site-Specific Runoff/Erosion Reduction Programs

In order to better understand potential barriers for program participation that might prevent growers/operations from using participation in programs to comply with EPA's proposed requirements to protect endangered species, and how those barriers may differ by crop/use site type, USDA asked respondents who reported representing operations that participated in site-specific runoff/erosion reduction programs (a.k.a. **respondents who represent runoff/erosion reduction program participants**) how easy or difficult it was to participate in these programs. In order to quickly obtain broad feedback, a five-point scale, where 1 represented very easy and 5 represented very difficult was used. This question is broken down by crop/use site type. **Across all surveyed use sites**, the majority of respondents who represent runoff/erosion reduction program participants reported that programs participation was neither easy nor difficult for operations they represented (60 percent of all respondents who represented operations that participated in programs). About 30 percent of respondents who represent runoff/erosion reduction program participants felt that program participations was easy (27 percent) or difficult (32 percent) for one or more of the operations they represent. Finally, less than 7 percent of respondents who represent runoff/erosion reduction program participants reported that program participation was very easy (7 percent) or very difficult (6 percent) for one or more of the operations they represent. This distribution was largely consistent across respondents who represent runoff/erosion reduction program participants across surveyed crops/use sites and did not differ substantively between **specialty and nonspecialty crops** (overall percent difference between these groups for all answers was less than 8 percent). Because this question was broken down by crop type rather than program type, differences in the ease of participating in each type of program of cannot be determined from this dataset. Responses **by crop** are displayed in Figure 7.



**Figure 7.** Ease of site-specific runoff/erosion reduction program participation in the past 5 years, by *crop/use site* (n = 215). **Survey question:** *If site-specific runoff/erosion reduction programs were used, how easy or difficult was it to implement the program or activities in terms of labor, training, capital expenditures, and other costs?*

**Respondents who represent runoff/erosion reduction program participants** were also able to provide **optional open-ended text feedback** to elaborate on the ease of participating in site-specific runoff/erosion reduction programs. Approximately 25 percent of program participant respondents who answered the associated multiple-choice question provided additional open-ended text feedback. We recognize that these comments may not represent all grower/operations, however, several themes that emerged from these comments are summarized here. Direct quotes from respondents are in grey italics. While most of these respondents indicated that program participation was not particularly difficult, several respondents provided feedback suggesting that ease of participation can vary depending on the program, operation, finances, and other factors. As one respondent put it, *“some [programs] are easy [and] some are difficult depending on planning of the funder and goals of the operation.”* Another respondent elaborated, *“Depending on the recommended practice, labor and capital expenditures varies. [Some programs are] challenging from the perspective of required record keeping, other programs that focused on structural practice are difficult sometimes due to lack of contractors to complete practices.”* Similarly, another respondent commented *“Increasing up front capital costs and lack of labor have made implementation in a timely manner increasing difficult.”* Several respondents suggested that there are ways that program purveyors can make adoption easier. As one respondent put it, *“Cost is huge. Working with a federal or state program helps immensely with technical and financial hurdles.”* Importantly, several mentioned the need for outreach and technical assistance, as one respondent put it *“education of the farmer is key to implementation.”* Therefore, while most respondents who represented operations that participated in programs indicated that participation was not difficult or extremely difficult, there are still be barriers to entry for specific operations or types of program. It should be noted that this question was asked of respondents who reported participating in a program on at least one operation. Therefore, the results represent opinions on the ease of program participation from those who already participate. Those who do not already participate may believe that enrolling or participating in a program is more difficult than these respondents. This issue is addressed further in the following section.



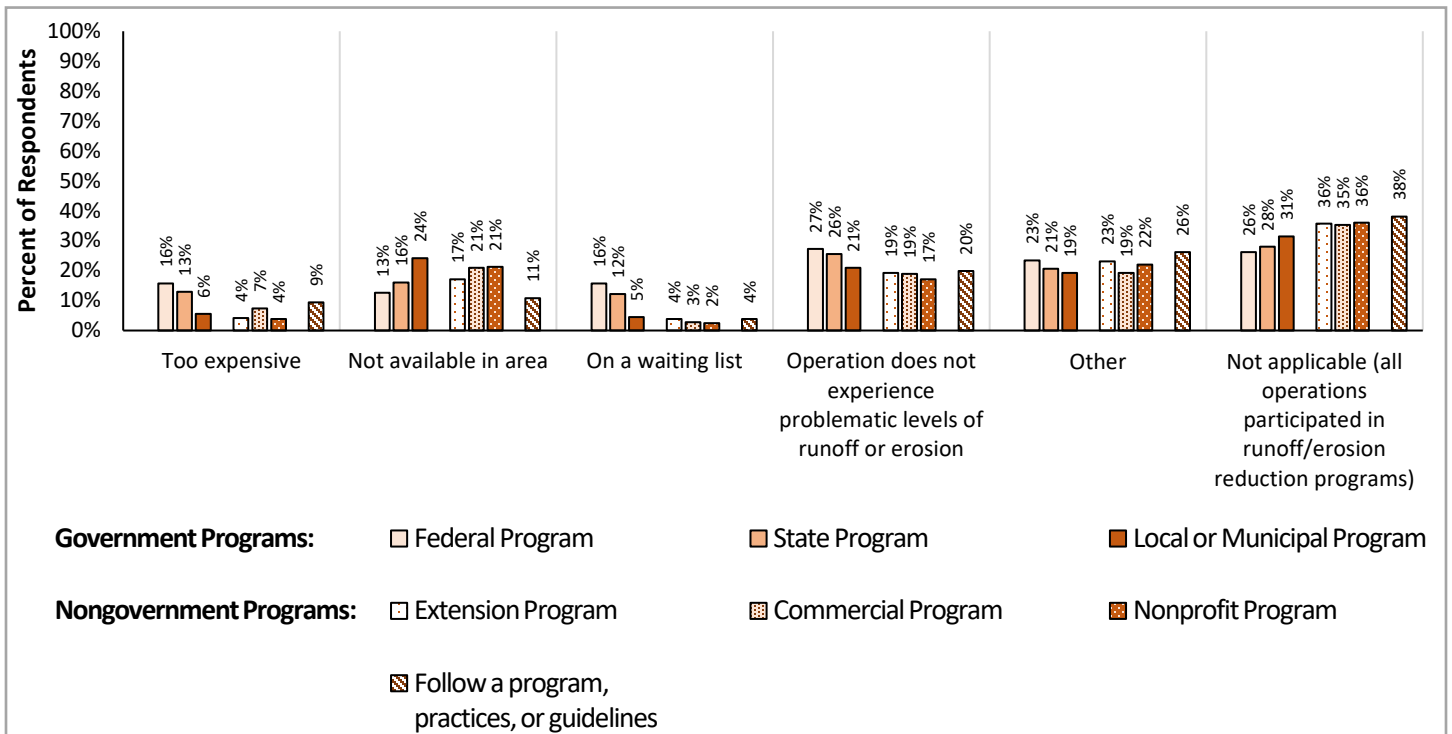
## Why Weren't Erosion/Runoff Programs Used?

In order to better understand barriers to program participation, and how those barriers may differ by program type, USDA asked **all respondents** why operations they represent did not participate in site-specific runoff/erosion reduction programs. Respondents could answer this question even if some or all of the operations they represent did participate in programs (i.e., respondents who represent runoff/erosion reduction program participants and respondents who represent operations that did not participate in runoff/erosion reduction programs were asked this question). A better understanding of barriers to entry may provide information that is useful in adapting programs to increase participation, and thus allow more operations to use participation in programs to comply with EPA's proposed requirements to protect endangered species. This question is broken down by runoff/erosion reduction program type.

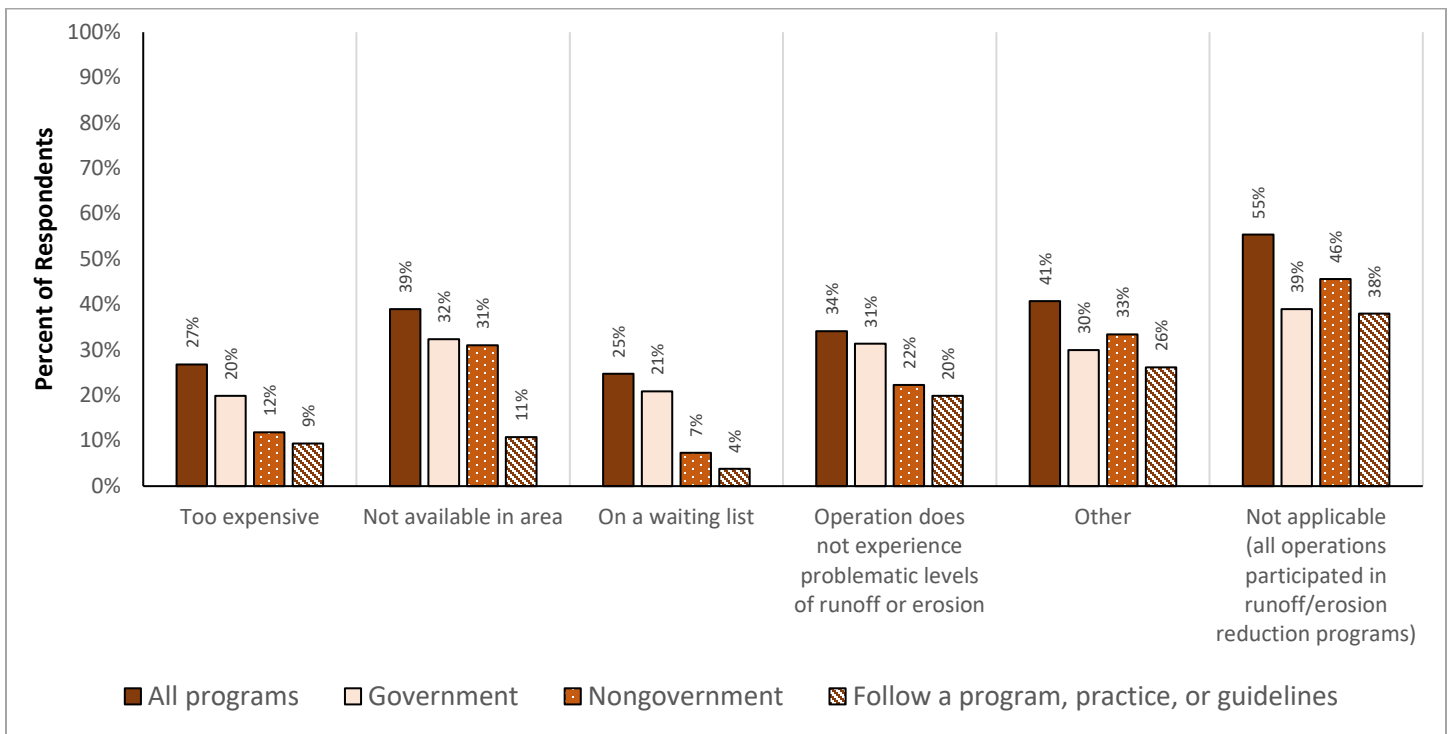
**Across all runoff/erosion reduction program types**, about a third of all respondents reported that operations they represent did not participate in erosion/runoff reduction programs because the **operation did not experience problematic levels of erosion/runoff** (34 percent of all respondents across all programs). Over a third of all respondents reported that growers believed erosion/runoff reduction programs **were not available in their area** (39 percent of all respondents across program types). This answer was most commonly associated with government programs and nongovernment programs (32 percent of government program respondents and 31 percent of nongovernment program respondents respectively) and was reported much less often in association with following a program, practice, or guidelines (11 percent of respondents who represent operations that follow a program, practice, or guidelines). Respondents also commonly reported **programs were too expensive** (27 percent of all respondents across programs), and/or that associated operations were **on a waiting list** for a program (25 percent of all respondents across programs). These issues were most commonly associated with government programs (20 percent of respondents reported government programs were too expensive and 21 percent reported they were on a waiting list for a government program), and were reported much less often in association with nongovernment programs (12 percent of nongovernment respondents reported programs were too expensive and 7 percent reported they were on a waiting list for a nongovernment), or following a program, practice, or guidelines (9 percent reported programs were too expensive, and 4 percent reported they were on a waiting list). **These responses indicate that respondents and the operations they represent had greater issues enrolling and/or participating in government and nongovernment programs compared to following a program, practice, or guidelines.** The difficulty, or perceived difficulty, with participating in government and nongovernment programs may be particularly problematic for growers/operations, as these program types are more likely to qualify for EPA's proposed requirements than following a program, practice, or guidelines where documentation of participation is unavailable. Furthermore, **these difficulties may disproportionately affect specialty crop growers/operations who respondents noted in previous questions are more likely to follow program, practice, or guidelines than more formalized government nongovernment programs.** The comparatively low level of issues that respondents associated with following a program, practice, or guidelines may help to explain why some operations participated in these practices rather than more formalized government and nongovernment programs.

Because this question was broken down by runoff/erosion reduction program type rather than crop/use site type, any differences in reasoning for not participating in programs between crop/use site types cannot be determined from this dataset. Responses for why site-specific runoff/erosion reduction programs were not utilized are provided below **by program type** (Figure 10) and **grouped program type** (Figure 11). Note respondents could select more than one option, and thus percentages are not additive).





**Figure 10.** Reasons why respondents reported operations did not participate in site-specific runoff/erosion reduction programs in the past 5 years, **by program type** (n = 287). **Survey question:** *If site-specific runoff/erosion reduction programs were not used on any/some of the operations with which you were involved, why was this practice or activity NOT used? Note: You may answer this question even if some operations you represent did participate in programs.*



**Figure 11.** Reasons why operations did not participate in site-specific runoff/erosion reduction programs in the past 5 years, **by grouped program type** (n = 287). **Survey question:** *If site-specific runoff/erosion reduction programs were not used on any/some of the operations with which you were involved, why was this practice or activity NOT used? Note: You may answer this question even if some operations you represent did participate in programs.*

**Respondents** were also able to provide **optional open-ended feedback** to elaborate on the reasons that operations they represent did not participate in runoff/erosion reduction programs. Approximately 40 percent of respondents who answered the associated multiple-choice question provided additional feedback. We recognize that these comments may not represent all grower/operations, however, several themes that emerged from these comments are summarized here. Direct quotes from respondents are in grey italics. These issues may prevent growers/operations from being able to use participation in programs to comply with EPA's proposed requirements to protect endangered species.

One very common theme was: a feeling that existing programs are too stringent and will not work on their land or with their equipment, general disagreement with the program guidelines or purported effectiveness of programs, and/or lack of trust in program purveyors (especially government programs). As one respondent commented, *"some producers disagree with the guidelines of the program."* Another respondent summarized why operations did not participate like this, *"lack of trust in the program sponsor, inconvenience, does not fit operation, rented land, regulations too stringent."* Specifically about government programs, one respondent stated that their operations *"will not accept government funding, practices do not fit operation, not able to attend meetings and therefore do not know about the opportunities,"* and another similarly commented *"producers didn't want to deal with government rules and regulations."*

Another set of themes surrounded difficulty meeting requirements to qualify for and/or maintain participation in a program, and the expense and length of time needed to implement programs. As one respondent put it, *"programs may have too stringent of a screening process and are difficult to work with."* Another respondent commented *"application process too complicated, wait time too long, [and] producer share too expensive."* Once enrolled in a program, a respondent wrote that participation is *"too time consuming for producer – not just in practice but in paperwork/record keeping."* Others mentioned that *"limits on acres for federal programs is problematic, as is the insistence of addressing multiple concerns."* Another respondent expressed the depth of the issue like this, *"many operations get frustrated with all the red tape that come along with the programs and simply throw in the towel. No matter how much incentive is available, it is simply not worth it to them."*

Several respondents mentioned that issues with cost and length of time to participate in programs are particularly impactful for growers/operations that operate on short term land leases or rented land who may not have the desire or authority to pursue long term structural land changes, and would likely not see a return on the investment needed to implement these programs. As one respondent put it, *"growers farming leased land cannot perform the same level of stewardship because they cannot derive profit and capital improvement benefits that an owner can."* Another respondent similarly commented, *"the vast majority of farmland [in this area] is rented annually. Farmers are loathe to spend money on something if they may not have the land long enough to reap the benefits."*

Other commentors suggested that operations may not implement programs because of lack of education and outreach. One respondent mentioned a general *"lack of knowledge for practice implementation/lack of understanding of broader conservation context."* Others commented that they were *"unaware of any programs in my area,"* and another said that there was *"not a lot of education or awareness of the programs or how they would fit their farm."*

Many respondents indicated that despite reticence to participate in official erosion/runoff reduction programs, many operations "self-funded" participation in informal best management practices "on their own w/o funding" (as was seen in the overall program results in figures 2 and 3). One respondent described the situation like this, *"some operations did not want to participate with government organizations but implemented practices on their own dime with technical assistance provided."* Similarly, another respondent said, *"many of my producers did control erosion prevention voluntarily and did not want any government intervention,"* and yet another respondent said, *"many implement practices outside of traditional programs because traditional programs are too expensive, the practice standards don't make sense, [and offer] limited technical support."*

## Optional Feedback

USDA also requested optional open ended text feedback from **all respondents** on *their general experience with site-specific runoff/erosion reduction programs*. Respondents could answer this question even if some or all of the operations they represent did participate in programs (i.e., respondents who represent runoff/erosion reduction program participants and respondents who represent operations that did not participate in runoff/erosion reduction programs were asked this question). We recognize that these comments may not represent all grower/operations, however, several additional themes emerged in these comments, which are summarized here. Representative quotes are presented below in grey italics.

One major theme from these comments, and other optional open ended text feedback options throughout the survey, was growers' desire to be good stewards of their land, including adopting practices to reduce runoff/erosion, even if this wasn't done as part of a formalized program. As one respondent stated,

*"Most of the producers I work with are good stewards of the land and they manage all runoff and erosion potential as part of their production protocol. They may participate in governmental programs but for the most part they do it as part of their BMP."*

Despite their desire to be good stewards of the land, further comments highlighted the difficulties many growers/operations have participating in formal programs, including the cost of participating.

*"Many farms want to implement erosion reduction projects but funding can be difficult because all programs are [funded by] reimbursement. Some farms don't want to take out a loan until payment."*

*"Some sites are easier to implement the farm plan than others. Some challenging sites are expensive to make necessary changes."*

*"When funding is limited to only a few years most farms won't continue practices long term unless proven to increase profit."*

*"Supporting (monetarily) producers who have already implemented these types of conservation practices would go a long way in keeping the momentum up. Many of the producers that I have worked with have expressed disdain about not being eligible for [...] programs to increase their positive impact without being penalized for already implementing their own practices which align with current recommendations."*

*"More money or cost share for soil erosion structures would be nice. [Programs] benefit wildlife as well as build soil health."*

Similarly, many respondents commented on the need for greater flexibility in program guidelines to allow more operations to participate.

*"Sometimes the criteria for participation are quite specific to certain types of operations and many of the growers don't qualify."*

*"If a federal program is limited to a couple hundred acres for a practice and the farmer is farming a couple thousand, by definition you are only taking care of 10% of the problems."*

*"Programs need to be flexible and allow for innovation."*

*"Successful programs have flexibility to accommodate deviations from technical standards."*

*"More grower supported programs are needed that enable the grower to have more market flexibility [and] have infrastructure for more crops."*

*"For best success things need to be kept as simple as possible with less red tape."*

## Conclusions

The results from this survey are intended to inform interagency and stakeholder discussions on the viability of runoff/erosion reduction program participation as an option to comply with EPA's proposed ESA requirements to protect endangered species, and to help EPA develop appropriate program qualification criteria. The survey's results show that approximately one-third (34 percent) of operations represented by advisor/consultant/extension agent respondents are currently participating in any type of site-specific runoff/reduction program. However, all program types may not equally satisfy EPA's proposed mitigation requirements. For example, approximately a quarter of respondents (23 percent) across crop/use site types indicated that one or more operations they represent independently followed programs, practices, or guidelines intended to reduce runoff/erosion reduction that did not result in documentation of participation, rather than participating in a formalized program with documentation. This type of practice may not qualify, or may not as clearly qualify, as an option to satisfy EPA's proposed requirements. The survey results also indicate that there may be significant barriers to entry for some growers/operations into existing formalized runoff/erosion reduction programs that result in documentation of participation. Furthermore, these challenges appear to differ by crop/use site type, and may be especially pronounced for specialty crop operations. Further investigation is needed to determine why respondents who represent specialty crop operations appear to participate in Federal and State government programs, which more clearly qualify for the proposed mitigation menu exemption, less often than nonspecialty crop respondents. Regardless of the cause, the apparent differences in the types of programs adopted by these two groups indicates that specialty crop operations may be less likely to be able to use current participation in programs to comply with EPA's proposed requirements to protect endangered species than nonspecialty crop operations. Therefore, specialty crop operations would likely have greater difficulty complying with the runoff/erosion mitigation requirements proposed by recent EPA ESA pilots and strategies.

For site-specific runoff/erosion reduction programs to be a truly viable option for all growers/operations to comply with EPA's proposed requirements to protect endangered species, barriers to entry including expense, availability, and perceived need should be addressed. Furthermore, because runoff/erosion reduction programs are often oversubscribed already, existing runoff/erosion reduction programs may need to be expanded or additional programs may need to be developed to accommodate growers/operations who currently do not, or cannot, participate in a qualifying program. This may be particularly impactful for specialty crop growers/operations and for those who operate on rented/leased land. Furthermore, respondents indicated that increased flexibility in program guidelines and increased funding for participants, as well as additional education and outreach highlighting the availability of programs and the benefits of program participation could help increase enrollment in formalized runoff/erosion reduction programs where documentation of participation is available. Lastly, as noted by many survey respondents, these programs take time to enroll in and implement, which could also be a barrier to immediate compliance with the requirements of EPA's proposals, especially as demand for these programs increases as a result of the ability to use program participation as an option to comply with EPA's proposed ESA requirements to protect endangered species.

## Appendix A: Program names from optional open-ended feedback (duplicate entries removed)

Bayer Carbon  
Cotton Trust Protocol  
Fish friendly farming  
Soil and Water Outcomes Fund  
Extension CGI  
Extension Educational Programs on Cover  
Crops  
Extension programs  
Nmp  
Texas A&M Agri-Life  
UF IFAS Pomegranate pilot program  
590 plan  
AD1026 for Crop Insurance  
AgNPS  
Certified Organic - requires crop rotation  
CNMP  
Conservation Reserve  
Conservation Stewardship Program  
CREP  
CRP  
CSP  
Environmental Quality Incentives  
Program  
EQIP  
Food Security Act Compliance  
FSA  
GLCI  
GLRI  
Natural Resource Conservation Service  
NRCS  
NRCS Conservation Plans  
NRCS Cost Share  
PCCP  
Reap  
RUSLE II  
priority watersheds  
RCPP  
CRE  
buffer strip  
Commercial Recommendations  
Conservation planting  
Cover Crop  
edge of field buffer  
Education demonstrations  
field agent  
filter strips  
following regenerative practices  
high residue fallow

idle land or turn land in grass to protect  
water in streams  
minimum till  
notill  
No-till  
No-Till 5 Year Program  
Nutrient management  
PAM  
pasture - ponds  
sms advanced  
strip cropping  
Strip-till  
terrace  
terraces  
transitioning row crop to perennial crops  
use of block polymers (SoilPam)  
water ways quail buffers  
xcel  
CD programs  
County - Land and Water Department cost  
share programs  
County - Land and Water Department cost  
share programs  
County Conservation Districts  
county cost sharing program  
County erosion partnership  
District Programs  
Local CCE programs  
Local cost share  
Local governments have requirements for  
engineered erosion control plans when  
redeveloping certain sites  
local grants  
Local Soil Conservation District support  
Local SWCD programs  
local work groups and various  
environmental group involvement and  
funding  
Upper Susquehanna Coalition(USC)  
other local NRD state programs  
10 million trees  
4R Nutrient Stewardship Program  
administered by the Ohio AgriBusiness  
Association. ([www.oaba.net](http://www.oaba.net))  
Audubon bird cover  
ESMC  
Field to Market  
IL Corn  
Million Acre Challenge [Future Harvest]

SARE  
NFWF Cowanesque Grant  
PCM  
Musconetcong  
Nutrient and Pest Management Programs  
Rutgers RC&D  
9 Key Element Plan  
CDFA  
crop insurance cover crop rebates  
Fall Covers for spring savings  
H2Ohio  
ILRP  
Irrigated Lands Regulatory Program  
MACS [Maryland Department of  
Agriculture]  
MN Ag Water Quality Cert Program  
MO Soil Water  
NC Farm Land Preservation  
NC Trust Funds  
NYS Ag &Market Programs  
PDA grants  
Penn State Conservation Assistance  
Program  
PennVest  
SnapPlus-WI State Program  
Soil Health Equipment Grants  
State - Ag Use Property Tax Credit  
State CCRWRCB has jurisdiction but they  
are not site specific.  
State Cost Share  
State Cost-Share  
State Farmland Preservation Program  
State of TN program to reduce excess  
fertilizer  
state watershed work  
State WQI for field crops  
TN FWHP  
VAAFMBMP  
VAAFMFAP  
Virginia Agricultural Cost Share Program  
WIDATCP  
CAFO program  
IEPA for construction sites  
Michigan Agriculture Environmental  
Assurance Program  
Penn State Dirt & Gravel Road Program  
whole orchard recycling  
Bad Axe River watershed  
Pinnebog River watershed



ACAP  
ACPF  
Ag water quality plans  
carbon programs  
Chesapeake Bay pass through funding  
Crop Land Protection Services  
Federal watershed clean fox river  
JC Soil and Water cost share  
PFC/CRR  
SWCD Cost Share  
Windshed Partnership  
Farmers of the Sugar River Watershed  
Farmland Preservation  
Farmland preservation tax credit program  
NIFA Water4Ag Project  
no till partnership  
Soil and Water Conservation  
watershed specific programs  
Wetlands program  
whep